

Patent Claims

- 5 1. Floor heating for an aircraft, in particular for a freight aircraft, comprising a floor (20) made up of heatable panels (18),
characterised in that the panels (18) have running through them first hollow chambers (26) and a feed line (28) connected to the first hollow chambers (26) for
warm waste air which originates from the cooling of the aircraft's electronic
10 equipment.
- 15 2. Floor heating in accordance with claim 1,
characterised in that the first hollow chambers (26) extend in the longitudinal
direction of the aircraft inside the panels (18).
- 20 3. Floor heating in accordance with claim 1 or 2,
characterised in that the feed line (28) serves to connect the first hollow chambers
(26) with an avionics bay (14) of the aircraft.
- 25 4. Floor heating in accordance with any of the claims 1 to 3,
characterised in that the first hollow chambers (26) are in flow connection with
second hollow chambers (32) in floor panels (34) of a cargo hold door (24) of the
aircraft.
- 30 5. Floor heating in accordance with claim 4,
characterised in that the second hollow chambers (32) terminate into the aircraft
fuselage (10).
- 35 6. Floor heating in accordance with any of the previous claims,
characterised in that another feed line connects the first hollow chambers (26) to hot
engine bleed air.
7. Floor heating in accordance with claim 6 in connection with claim 4,
characterised in that yet another feed line connects the second hollow chambers (32)
to hot engine bleed air.

8. Floor heating in accordance with claim 6 and 7,
characterised in that the feed line cross-sections determine the amount of hot engine
bleed air supplied.

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9. Floor heating in accordance with any of the previous claims,
characterised in that the panels (18) are thermally uncoupled from a structure which
supports the floor (20).

10. 10. Floor heating in accordance with any of the previous claims,
characterised in that the panels (18) are provided with electric heating mats for
supplementary heating.

15. 11. Floor heating in accordance with claim 10,
characterised in that the electric heating mats are positioned on the lower side of the
panels (18).

20. 12. Floor heating in accordance with any of the previous claims,
characterised in that electric heating coils or wires are integrated into the hollow
chambers (26, 32) for supplementary heating.

13. Floor heating in accordance with any of the previous claims,
characterised in that ventilators are positioned in the hollow chambers (26, 32) in
order to generate a forced flow through the hollow chambers (26, 32).

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14. Floor heating in accordance with any of the previous claims,
characterised in that the panels (18) are provided with thermal insulation (42) on
their lower side.

30. 15. Floor heating in accordance with any of the previous claims,
characterised in that the panels (18) are profile elements produced by extrusion, in
particular by continuous extrusion.

35. 16. Method for heating the floor of an aircraft, in particular a freight aircraft,
characterised in that the warm waste air originating from the cooling of electronic
equipment in the aircraft is conveyed through hollow chambers in the panels forming
the floor.

17. Method in accordance with claim 16,
characterised in that the warm waste air is conveyed through the panels in
longitudinal direction of the aircraft and preferably counter to the flight direction.

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18. Method in accordance with claim 16 or 17,
characterised in that the warm waste air originates from the aircraft's avionics bay.

19. Method in accordance with any of the claims 16 to 18,
10 characterised in that the warm waste air, after having flowed through the hollow
chambers in the panels forming the floor, is conveyed through the floor panels of the
aircraft's cargo hold door.

20. Method in accordance with claim 19,
15 characterised in that the warm waste air flows out into the aircraft fuselage after
having flowed through the floor panels of the cargo hold door.

21. Method in accordance with any of the claims 16 to 20,
characterised in that the warm waste air, which originates from the cooling of the
20 aircraft's electronic equipment, is mixed with hot engine bleed air before it is
conveyed to the hollow chambers.

22. Method in accordance with claim 19,
characterised in that hot engine bleed air is mixed into the warm waste air which
25 originates from the cooling of the aircraft's electronic equipment before being
conveyed to the hollow chambers of the floor, and that hot engine bleed air is mixed
into the waste air after the latter has flowed through the floor, but before flowing
through the cargo hold door.

30 23. Method in accordance with any of the claims 16 to 22,
characterised in that the panels forming the floor are additionally heated by
electricity.

35 24. Method in accordance with any of the claims 16 to 23,
characterised in that a forced flow is generated in the hollow chambers.